

REMARKS/ARGUMENTS

The Office Action mailed July 17, 2003 and faxed March 26, 2004 has been carefully reviewed. Reconsideration of this application, as amended and in view of the enclosed Petition and the following remarks, is respectfully requested. The claims presented for examination are: claims 40-42, 48-50, 66-68 and 88-90.

Restriction Requirement

In the Restriction Requirement mailed May 29, 2003, the Examiner restricted the prosecution of the above-captioned application to one of the inventions as grouped below. The Examiner supports the requirement for restriction under 35 U.S.C. 121.

Groups

- I. Claims 1-24 drawn to a target, having various layers, concave and curved shapes, and made from different materials, classified in class 313, subclass 363.1.
- II. Claims 25-39, 43-45, and 69-87 drawn to a system, including a light source, a target, and means for delivering energy to the target, classified in class 250, subclass 398.
- III. Claims 40-42, 48-50, 66-68 and 88-90 drawn to a method of delivering a light pulse onto a target and channeling the formed ions into a beam for radiation therapy, classified in Class 250, subclass 505.1.

Response to Restriction Requirement

Applicants elected the claims of group III, claims 40-42, 48-50, 66-68 and 88-90 drawn to a method of delivering a light pulse onto a target and channeling the formed ions into a beam for radiation therapy.

The Drawings

In the summary cover sheet of the Office Action mailed July 17, 2003 and faxed March 26, 2004, the drawings were indicated to be "objected to by the Examiner." There was no explanation or elaboration of the objection.

Applicant is submitting a new set of drawings by a separate letter to the Office Draftsman. Applicant believes these new drawings fully respond to the objection.

35 USC 103 Rejection

In the Office Action mailed July 17, 2003 and faxed March 26, 2004, in paragraph 2, claims 40-42, 48-50, 66-68 and 88-90 were rejected under 35 USC §103(a) as being unpatentable over the primary reference Umstadter et al. (US 5,789,876) in view of the secondary reference Schultheiss et al. (US 5,576,593) and further in view of the third reference Slatkin et al. (US 5,339,347) and the fourth reference Segall (US 4,215,274).

Applicants have amended all of the independent claims presented for examination; therefore claims 40-42, 48-50, 66-68 and 88-90 are now presented in amended form. Since claims 40-42, 48-50, 66-68 and 88-90 now appear in amended form the 35 USC §103(a) rejection in the Office Action mailed July 17, 2003 and faxed March 26, 2004 no longer applies.

Applicants believe that claims 40-42, 48-50, 66-68 and 88-90 now presented for examination are patentable and that the primary Umstadter et al. reference, the secondary Schultheiss et al. reference, the third Slatkin et al. reference, and the fourth Segall reference would not support a 35 USC §103(a) rejection.

The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966) that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) include "Ascertaining the differences between the prior art and the claims at issue."

The differences between the primary reference, Umstadter et al., and Applicants' invention defined by claims 40-42, 48-50, 66-68 and 88-90 include the following missing elements:

"a target having a first layer and a second layer arranged to receive said laser pulse from said laser system and to produce a beam of protons or other ions,"

"a laser pulse transport system operatively coupled to said laser system and said target and having an electronic guide,"

"a treatment field,"

"a beam transport system operatively coupled to said target and said treatment field for transporting said beam of protons or other ions from said target to said treatment field,"

"said laser pulse transport system is comprised of elements selected from the group consisting of slits, filters, magnets, foils and shields,"

"the target is operatively connected to at least one roller,"

"a target positioned to receive a laser shot from said light source and to produce a beam of protons or other ions,"

"a transport system operatively connected to said light source and to said target capable of delivering energy in the range of approximately 10 to approximately 500 MeV to said target,"

"a beam transport system operatively coupled to said target and to said treatment field for transporting said beam of protons or other ions from said target to said treatment field,"

"said target has a first layer and a second layer; and said first and second layers having a combined thickness in the range of approximately 60 to approximately 2500 nm,"

"said target has a substantially concave shape,"

"a target capable of producing radiation elements that produces the protons or other ions,"

"a transport system operatively connected to said light source and to said target capable of delivering energy per laser shot of between approximately 1 and approximately 10 Joules to said target,"

"a transport system capable of delivering the protons or other ions which may penetrate about 10 to about 20 cm beneath the surface of skin tissue in said treatment field,"

"a transport system capable of delivering the protons or other ions having energy to produce a dose per shot at a said treatment field in the range of about .1 to about 10 Gy,"

"guiding said pulse through a fiber optic section to a target thereby causing said target to emit the protons or other ions,"

"delivering the protons or other ions emitted from said target to the treatment field,"

"guiding said pulse through a fiber optic section to a target thereby causing said target to emit the protons or other ions,"

"delivering the protons or other ions emitted from said target to the oncological treatment field in the patient," or

"positioning said fiber optic section beneath the skin surface of the patient."

Applicant respectfully submits that there can be no combination of the primary Umstadter et al. reference, the secondary Schultheiss et al. reference, the third Slatkin et al. reference, and the fourth Segall reference that would render Applicant's invention defined by amended claims 40-42, 48-50, 66-68 and 88-90 obvious within the meaning of 35 USC 103. The claimed invention presented for examination is patentable for at least the following reasons: (1) there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or

to combine reference teachings, (2) there would not a reasonable expectation of success with any combination, (3) the references do not teach or suggest the claim limitations. It should be noted that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

SUMMARY

The undersigned respectfully submits that, in view of the foregoing amendments, the enclosed Petition, and the foregoing remarks, the rejections of the claims raised in the Office Action mailed July 17, 2003 and faxed March 26, 2004, have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that the claims be allowed, and that this case be passed to issue. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to call the undersigned attorney at (925) 424-6897.

Respectfully submitted,



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